

AC NO: 150/5345-50

DATE: October 16, 1978



ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SUBJECT: SPECIFICATION FOR PORTABLE RUNWAY LIGHTS

1. PURPOSE. This advisory circular contains a specification for portable runway edge lights and runway end identifier lights for temporary use to permit continued aircraft operations while all or part of a runway edge lighting system is inoperative.

2. REFERENCE.

AC 150/5345-1, Approved Airport Lighting Equipment (current issue).

3. CRITERIA FOR USE OF PORTABLE LIGHTS. The portable lights are for **use** only on a temporary basis and are not suitable for permanent **use**. They are intended primarily for visual flight rules (**VFR**) operations **but** may, on individual approval from the Flight **Standards** Division of FAA regional offices (Appendix 1), be used for instrument flight rules (**IFR**) operations. Where the portable **edge** lights are used to identify the runway threshold, they should **be** supplemented with the portable runway end identifier lights to improve runway end definition. The portable lights should **be** securely anchored to withstand wind and propeller/jet **blasts**.

A handwritten signature in black ink, reading "Robert J. Aaronson".

ROBERT J. AARONSON
Assistant Administrator
Office of Airports Programs

SPECIFICATION FOR PORTABLE RUNWAY LIGHTS

1. SCOPE AND CLASSIFICATION.

1.1 Scope. - This specification sets forth the requirements for portable, battery-powered light units to be used to identify and delineate airport runways on a temporary basis.

1.2 Classification. - The following types of light units are covered by this specification:

L-863C Steady-burning, clear edge light.

L-863 R/G Steady-burning, 180° aviation red/180° aviation green threshold/runway end light.

L-863 C/Y Steady-burning, 180° clear/180° aviation yellow edge light.

L-864 Flashing clear runway end identifier light.

2. APPLICABLE DOCUMENTS .

2.1 Military Publications. - The following publications, of the issue in effect on the date of application for qualification, form part of this specification and are applicable to the extent specified herein.

MIL-C-7989 Covers, Light-Transmitting, for Aeronautical Lights, **General Specifications For.**

MIL-C-25050 Colors, Aeronautical Lights and Lighting Equipment, **General Requirements For.**

2.2 Other Publications. - The following publication forms a part of this specification.

"Guide for Calculating the Effective Intensity of Flashing Signal Lights, " Illuminating Engineering Volume LIV, November 1964

(Copies of the referenced **military** specifications may be obtained from the Commanding Officer, **Naval** Supply Depot, 5801 **Tabor** Avenue, Philadelphia, Pennsylvania 19120, Attention: Code CDS.)

(Information on obtaining reprints from Illuminating Engineering may be obtained from the Illuminating **Engineering** Society, 345 East 47th Street, New York, New York 10017.)

3. REQUIREMENTS.

3.1 Equipment to be Supplied. - Each light unit shall be complete in accordance with all specification requirements and shall include instruction sheets (3.3), batteries (3.4.1), and anchors (3.7). However, at the option of the purchaser, light units may be supplied without batteries or anchors.

3.2 Environmental Conditions. - The light units, complete with battery, shall be designed for use under the following environmental conditions,

3.2.1 Temperature. - Any ambient temperature from -20°C to $+50^{\circ}\text{C}$.

3.2.2 Wind. - Wind velocities due to aircraft propeller/jet blasts of up to 150 mph (240 km/h).

3.2.3 Weather. - Continuous outdoor operation under all normal weather conditions including exposure to the sun, blowing dirt and sand, rain, snow, ice, hail, sleet, and to salt-laden atmosphere.

3.3 Photometric Requirements. -

3.3.1 Steady-Burning Light. - The light unit shall meet the photometric requirements as shown in Figure 1 when tested with a clear lens. Colored lenses shall be aviation red, green, and yellow and shall meet the chromaticity and transmissivity (Grade D) requirements of MIL-C-25050.

3.3.2 Flashing Light. - The light unit shall have a flash rate of 60 to 80 flashes per minute and, with a clear lens, meet the photometric requirements shown in Figure 2. The effective intensity shall be determined as specified in "Guide for Calculating the Effective Intensity of Flashing Signal Lights."

3.4 Electrical. - All current carrying parts of the light units shall be suitable for the service intended.

3.4.1 Batteries. - Batteries shall be of a readily available type that will operate the L-863 lights for a minimum of 72 continuous hours and the L-864 lights for a minimum of 24 continuous hours at rated intensities.

3.4.2 Lamp. - The lamp used with the steady-burning light shall have a rated life of at least 200 hours. The flasher lamp shall have a rated life of at least 1,500 hours when flashed at the required rate of 60 to 80 flashes per minute. Power to the lamp shall be controlled by an externally operated switch.

3.5 Optical System. - The optical system shall consist of a lens assembly and may include reflectors and shields. The lens may be either glass or plastic conforming to MIL-C-7989. The assembly must be easily removed and replaced and must retain its correct alignment. Reflectors, if used, may be either plastic, stainless steel, or aluminum with a specular finish similar and equal to "Alzak."

3.6 Housing. - The housing shall be fabricated from high-impact plastic, nonferrous metal, or from ferrous metal suitably protected against corrosion. Copper bearing hardware in contact with aluminum shall be cadmium, nickel, or zinc plated. Housings shall have sufficient strength and rigidity to support the battery and withstand normal handling. Joints between metal and glass shall be sealed by watertight gaskets. The bottom surface of the housing shall allow the light unit to remain in a stable upright operating position when the light unit is placed on a flat surface. The overall height of the L-863 light fixtures, including battery housing, shall not exceed 14 inches (35 cm). The overall height of the L-864 light fixture shall not exceed 24 inches (60 cm). The color of the external surface shall be yellow.

3.7 Anchoring Provision. - The L-863 light fixture shall be equipped with an anchor or provision for an anchor, to be supplied by the purchaser, to insure that the light fixture remains in its intended upright position when placed in its operating environment.

3.8 Instruction Sheet. - The instruction sheet shall contain a complete parts list, battery requirements, and anchoring instructions. Sufficient illustrations or drawings shall be included to clearly indicate the anchoring procedure utilizing readily available hardware.

3.9 Label. - A label shall be affixed to the housing and shall contain the manufacturer's name and address and the light unit type number.

4. QUALITY ASSURANCE PROCEDURES.

4.1 Qualification Procedures. - Manufacturers producing products, certified by the Federal Aviation Administration (FAA) as having met the requirements specified herein, will be listed as an approved supplier in Advisory Circular 150/5345-1, Approved Airport Lighting Equipment. Requests for qualification should be submitted, in writing, to the Federal Aviation Administration, Office of Airports Programs, Visual Aids Standards Branch, AAP-550, Washington, D.C. 20591, at least two weeks prior to the start of qualification tests. The request shall include: (1) a statement that the manufacturer agrees to comply with all provisions of this specification; (2) a copy of proposed test procedures and test data sheets; and (3) a preliminary copy of drawings, photographs, and installation instructions to permit a preliminary analysis of the manufacturer's design. Successful completion of all tests specified herein and written agreement by the manufacturer to comply with all provisions herein are required for qualification. All tests may be witnessed by an authorized FAA representative and laboratory acceptable to the FAA. The manufacturer shall bear all testing costs. A certified copy of the test results of all qualification tests shall be submitted to the FAA. A product, once listed in Advisory Circular 150/5345-1, may not be changed as to design, method of manufacture, quality or quantity of materials, or substitution of components without prior concurrence by the FAA.

4.2 Guarantee. - The manufacturer shall agree to provide each customer with at least the following minimum guarantee: That the product has been manufactured in accordance with and will perform as required by the governing specification and that any defect in material or workmanship which may develop during normal use during a period of 90 days Will be corrected by the manufacturer.

4.3 Qualification Test+

4.3.1 Visual Examination. - The equipment will be visually inspected for conformance to the applicable design requirements of this specification.

4.3.2 Photometric Test. - The optical performance of the light units shall be determined by photometric readings taken with the lens, lamp, and battery(s) to be furnished with the light unit. The photometric requirements shown in Figures 1 and 2 shall be met when the batteries have operated the lights for the hours given in 3.4.1. The resultant **isocandela** curve may be shifted a maximum of one degree either side, horizontally or vertically, with reference to the applicable specification curve to determine photometric compliance.

4.3.3 Wind Test. - The manufacturer shall prove, either by actual wind tests or calculations, that the light units will remain in place and not be damaged when anchored in accordance with the recommended Instructions and subjected to a wind velocity of 150 mph (240 km/h).

4.3.4 Temperature Test. - The light units, complete with battery(s), shall be brought to **-20°C** and maintained at that temperature while an operation test is conducted to determine that the light unit will perform satisfactorily at this temperature. The same test will be repeated at **+50°C**.

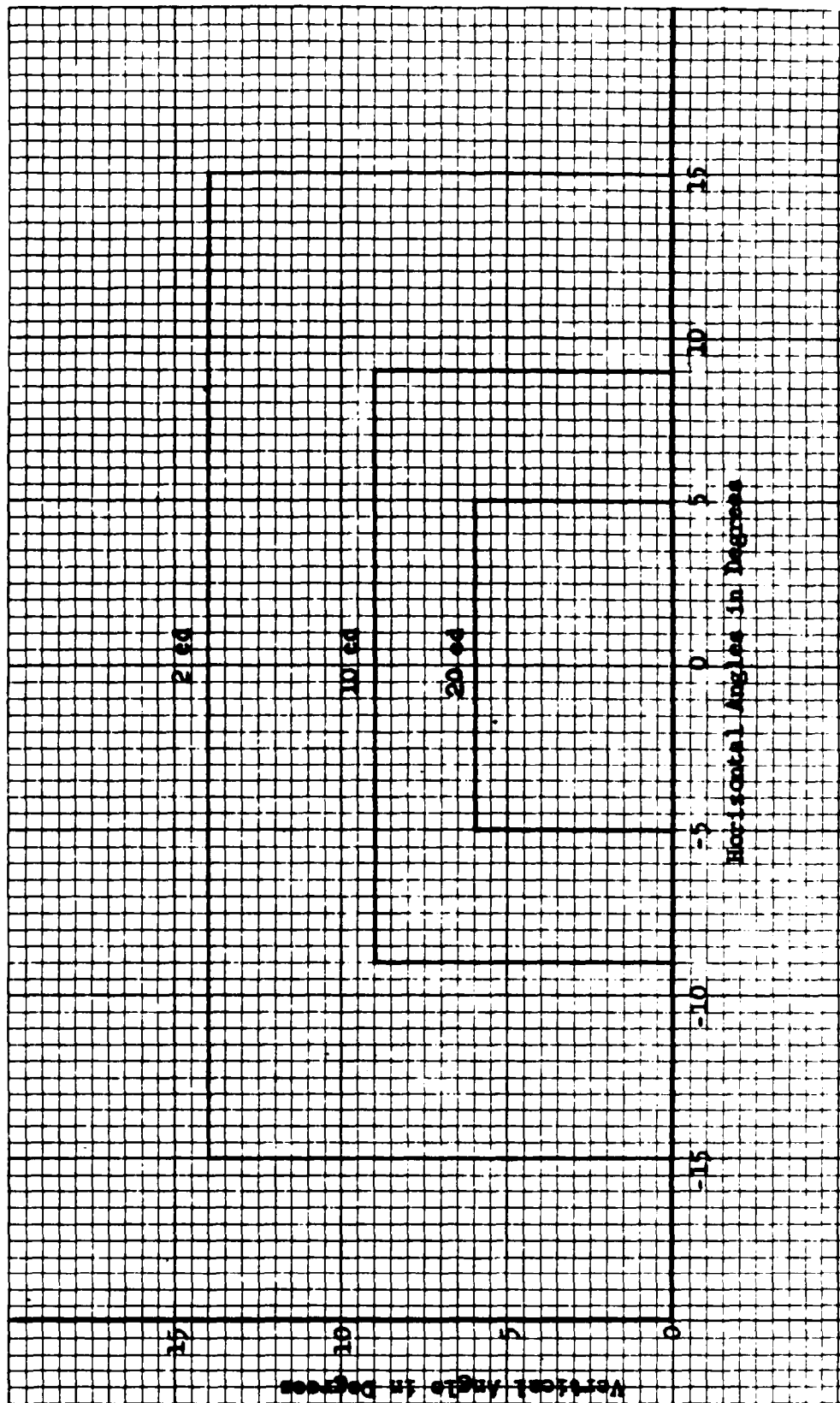


FIGURE 1. PHOTOMETRICS FOR THE TYPE L-863 LIGHT UNIT.

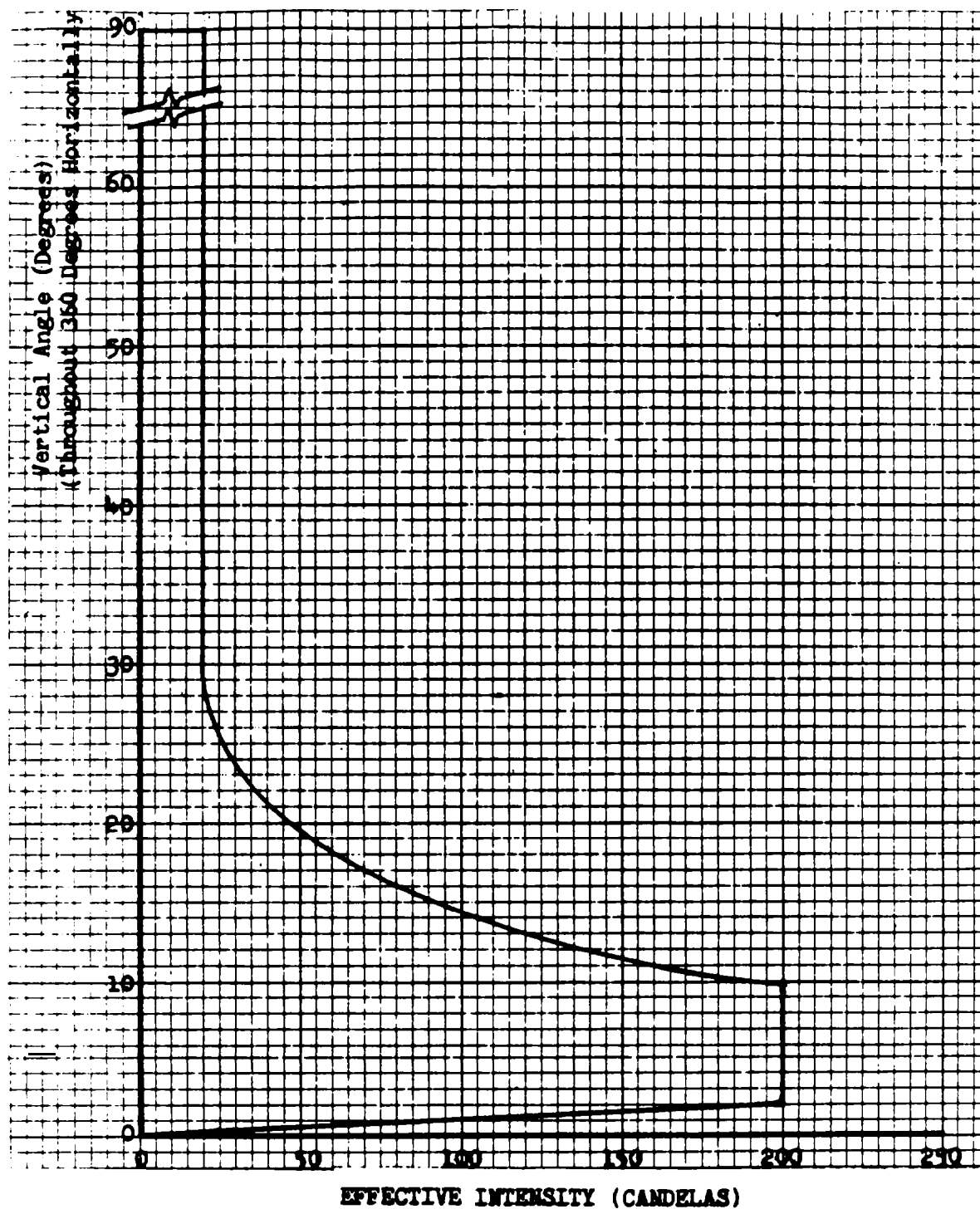


FIGURE 2 . PHOTOMETRICS FOR THE TYPE L-864 LIGHT UNIT.

ADDRESSES OF REGIONAL OFFICES

Federal Aviation Administration
Alaskan Regional Office
632 Sixth Avenue
Anchorage, Alaska 99501
Tel.: 907-265-4446

Federal Aviation Administration
Central Regional Office
601 East 12th Street
Kansas City, Missouri 64106
Tel.: 816-374-5278

Federal Aviation Administration
Eastern Regional Office
JFK International Airport
Federal Building - Room 329
Jamaica, New York 11430
Tel.: 212-995-8543

Federal Aviation Administration
Great Lakes Regional Office
2300 East Devon Avenue
Des Plaines, Illinois 60018
Tel.: 312-694-4500, ext. 2271

Federal Aviation Administration
New England Regional Office
12 New England Executive Park
Burlington, Massachusetts 01803
Tel.: 617-273-7235

Federal Aviation Administration
Northwest Regional Office
FAA Building, Boeing Field
Seattle, Washington 98108
Tel.: 206-767-2740

Federal Aviation Administration
Pacific Regional Office
Prince Jonah Kuhio Kalaniana'ole Bldg.
Honolulu, Hawaii 96813
Mail Address:
P. O. Box 4009
Honolulu, Hawaii 96813
Tel.: 808-546-7129

Federal Aviation Administration.
Rocky Mountain Regional Office
10455 East 25th Avenue
Aurora, Colorado 80010
Tel.: 303-837-3855

Federal Aviation Administration
Southern Regional Office
3400 Whipple Street
East Point, Georgia 30344
Mail Address:
P. O. Box 20636
Atlanta, Georgia 30320
Tel.: 404-763-7288

Federal Aviation Administration
Southwest Regional Office
4400 Blue Mound Road
Fort Worth, Texas 76131
Mail Address:
P. O. Box 1689
Fort Worth, Texas 76101
Tel.: 817-624-4911

Federal Aviation Administration
Western Regional Office
15000 Aviation Boulevard
Lawndale, California 90261
Mail Address:
P. O. Box 92007
Worldway Postal Center
Los Angeles, California 90009
Tel.: 213-536-6240

